=> file hcaplus

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FILE COVERS 1967 - 19 Sep 2000 VOL 133 ISS 13
FILE LAST UPDATED: 18 Sep 2000 (20000918/ED)

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=> d que l31

L17	23	SEA FILE=HCAPLUS ABB=ON	BORIC ACID(S)MEASUR?(4A)CONC?
L18	32	SEA FILE=HCAPLUS ABB=ON	BORIC ACID(S)DETERM?(4A)CONC?
L19	51	SEA FILE=HCAPLUS ABB=ON	L17 OR L18
L20	259	SEA FILE=HCAPLUS ABB=ON	BORIC ACID(L)ANT/RL
L21	2	SEA FILE=REGISTRY ABB=ON	"BORIC ACID"/CN
L22	17360	SEA FILE=HCAPLUS ABB=ON	L21
L23	57	SEA FILE=HCAPLUS ABB=ON	(L22 OR H3BO3)(S)(MEASUR? OR DETERM?)(4A)CONC?
L24	267	SEA FILE=HCAPLUS ABB=ON	(L22 OR H3BO3)(L)ANT/RL
L25	30	SEA FILE=HCAPLUS ABB=ON	(L19 OR L23) AND (L20 OR L24)
L26	0	SEA FILE=HCAPLUS ABB=ON	(L19 OR L23) AND ?CARBOXYLIC
L27	0	SEA FILE=HCAPLUS ABB=ON	(L19 OR L23) AND ?CARBOXYL? ACID#
L28	0	SEA FILE=HCAPLUS ABB=ON	(L19 OR L23) AND LUBRIC?
L29	16	SEA FILE=HCAPLUS ABB=ON	(L19 OR L23) AND COOLANT?
L30	1	SEA FILE=HCAPLUS ABB=ON	(L19 OR L23) AND ?CARBOXYL?
L31	37	SEA FILE=HCAPLUS ABB=ON	(L25 OR L26 OR L27 OR L28 OR L29 OR L30)

=> file wpids

FILE 'WPIDS' ENTERED AT 12:24:08 ON 19 SEP 2000

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    SEE http://www.derwent.com/covcodes.html  <<<

=> d que 143

L32          40 SEA FILE=WPIDS ABB=ON  (BORIC ACID OR H3BO3)(S)(DETERM? OR
                MEASUR?)(3A) CONC?
L34           3 SEA FILE=WPIDS ABB=ON  L32 AND (LUBRI? OR COOLANT?)
L36         163 SEA FILE=WPIDS ABB=ON  BORIC/TI AND CONC?/TI
L37          17 SEA FILE=WPIDS ABB=ON  L32 AND L36
L39           0 SEA FILE=WPIDS ABB=ON  L37 AND (CAR OR AUTOMOB?)
L40           0 SEA FILE=WPIDS ABB=ON  L37 AND VEHIC?
L41           3 SEA FILE=WPIDS ABB=ON  L34 OR L39 OR L40
L42           1 SEA FILE=WPIDS ABB=ON  L32 AND ?CARBOXYL?
L43           4 SEA FILE=WPIDS ABB=ON  L41 OR L42


=> file compendex

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FILE LAST UPDATED: 28 AUG 2000      <20000828/UP>
FILE COVERS 1970 TO DATE.


=> d que 147

L44          16 SEA FILE=COMPENDEX ABB=ON  (BORIC ACID OR H3BO3)(S)(DETERM? OR
                MEASUR?)(3A) CONC?
L45           2 SEA FILE=COMPENDEX ABB=ON  L44 AND (LUBRI? OR COOLANT?)
L46           5 SEA FILE=COMPENDEX ABB=ON  L44 AND MEASUREMENTS+NT/CT
L47           6 SEA FILE=COMPENDEX ABB=ON  L45 OR L46


=> file jicst

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FILE COVERS 1985 TO 19 SEP 2000 (20000919/ED)

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TERM (/CT) THESAURUS RELOAD.

=> d que 152

L48           9 SEA FILE=JICST-EPLUS ABB=ON  (BORIC ACID OR H3BO3)(S)(DETERM?
                OR MEASUR?)(3A) CONC?
L49        9821 SEA FILE=JICST-EPLUS ABB=ON  CONCENTRATION DETERMINATION+NT/CT

L50           3 SEA FILE=JICST-EPLUS ABB=ON  L48 AND L49
L51           7 SEA FILE=JICST-EPLUS ABB=ON  L49 AND BORIC ACID+NT/CT
L52           7 SEA FILE=JICST-EPLUS ABB=ON  L50 OR L51


=> file ceaba

FILE 'CEABA' ENTERED AT 12:24:48 ON 19 SEP 2000
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FILE LAST UPDATED: 25 NOV 1999      <19991125/UP>
FILE COVERS 1971 TO DATE.

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    common database in chemical engineering and biotechnology.
    The merged file called CEABA-VTB is scheduled for release
    in September 2000. Updating will continue with the merged file. <<<

=> d que l53

L53           2 SEA FILE=CEABA ABB=ON  (BORIC ACID OR H3BO3)(S)(DETERM? OR
                MEASUR?)(3A) CONC?


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FILE COVERS 1964 TO DATE.

=> d que l57

L54          12 SEA FILE=NTIS ABB=ON  (BORIC ACID OR H3BO3)(S)(DETERM? OR
                MEASUR?)(3A) CONC?
L56        4101 SEA FILE=NTIS ABB=ON  QUANTITATIVE CHEMICAL ANALYSIS+NT/CT
L57           2 SEA FILE=NTIS ABB=ON  L54 AND L56

=> dup rem l31 l43 l47 l52 l53 l57

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PROCESSING COMPLETED FOR L43
PROCESSING COMPLETED FOR L47
PROCESSING COMPLETED FOR L52
PROCESSING COMPLETED FOR L53
PROCESSING COMPLETED FOR L57
L58          57 DUP REM L31 L43 L47 L52 L53 L57 (1 DUPLICATE REMOVED)
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=> d l58 all 1-57

L58 ANSWER 1 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 2000:577123 HCAPLUS
DN 133:184477
TI Contribution to the balancing and regulation of 7Li-budget in pressurized water reactors
AU Bolz, M.; Enkler, G.
CS Germany
SO Tagungsber. - Jahrestag. Kerntech. (2000) 447-450
CODEN: TJKEDX; ISSN: 0720-9207
PB INFORUM Verlags- und Verwaltungsgesellschaft
DT Journal
LA German
CC 71-4 (Nuclear Technology)
AB The thermal performance of PWRs is **detd.** by the **concn.** on **H3BO3** in the primary **coolant**, and the ability of 10B to absorb thermal neutrons under release of .alpha.-particles and 7Li. At the begin of the cycle the reactivity of the nuclear fuel was high and a high H3BO3 concn. was recommended to catch the excess neutrons, while with increasing burnup the demand on H3BO3 decreased down to zero. The 7Li budget of a PWR was balanced for the first time, and conventional and novel procedures to influence the concn. of 7LiOH are reported, as well as their potential economic benefits.
ST membrane electrolysis lithium removal **coolant** PWR; boric acid removal membrane electrolysis PWR **coolant**
IT Cooling water
Mass balance
(balancing and regulation of 7Li-budget in pressurized water reactors)
IT Pressurized water nuclear reactors
(cooling systems; balancing and regulation of 7Li-budget in pressurized water reactors)
IT Wastewater treatment
(electrochem., membrane; balancing and regulation of 7Li-budget in pressurized water reactors)
IT Water purification
(electrolysis, membrane; balancing and regulation of 7Li-budget in pressurized water reactors)
IT Wastewater treatment
(membrane sepn., electrochem.; balancing and regulation of 7Li-budget in pressurized water reactors)
IT Nuclear reactor cooling systems
(pressurized-water; balancing and regulation of 7Li-budget in pressurized water reactors)
IT 10043-35-3, Boric acid, processes 13982-05-3, Lithium 7, processes
RL: PEP (Physical, engineering or chemical process); REM (Removal or disposal); PROC (Process)
(balancing and regulation of 7Li-budget in pressurized water reactors)

L58 ANSWER 2 OF 57 COMPENDEX COPYRIGHT 2000 EI
AN 1999(32):2649 COMPENDEX
TI Wet chemical method for the determination of thickness of SiO2 layers below the nanometer level.
AU De Smedt, F. (Katholieke Universiteit Leuven, Leuven, Belgium); Stevens, G.; De Gendt, S.; Cornelissen, I.; Arnauts, S.; Meuris, M.; Heyns, M.M.; Vinckier, C.
SO Journal of the Electrochemical Society v 146 n 5 1999.p 1873-1878
CODEN: JESOAN ISSN: 0013-4651
PY 1999
DT Journal
TC Experimental
LA English
AB A wet chemical procedure has been elaborated to measure the thickness of

thin silicon dioxide layers.The procedure is based on the etching of the SiO2 layer by HF and the **determination** of Si **concentration** in the microgram per liter range in the HF containing etch solutions.Two analytical techniques were optimized for this purpose: a spectrophotometric technique, the so-called molybdenum blue method and inductively coupled plasma mass spectrometry (ICP-MS).In the first method a detection limit of 3.3 mu g/L Si could be achieved with a sensitivity of (780 plus or minus 8.7) multiplied by 10 minus 6/(mu g/L Si).Interference by HF up to 0.1% v/v (volume/volume %) HF could be eliminated by adding **boric acid** to the solution.In the second method Si was determined by ICP-MS using the 28Si isotope.The detection limit in bidistilled water was 1.2 mu g/L Si with a sensitivity of (5807 plus or minus 98) cps/(mu g/L Si).The presence of HF increased the background signal of Si due to the etching of the quartz plasma torch.In 0.005% v/v HF a detection limit of 5.9 mu g/L Si could be achieved.For silicon dioxide layers below 1 nm, a reproducibility better than 5% was obtained.(Author abstract) 20 Refs.

CC 712.1 Semiconducting Materials; 712.1.2 Compound Semiconducting Materials; 804.2 Inorganic Components; 943.2 Mechanical Variables Measurements; 802.2 Chemical Reactions; 801 Chemistry

CT *Semiconducting films; **Spectrophotometry; Thickness measurement**; Etching; Hydrofluoric acid; Boron compounds; **Mass spectrometry**; Plasma applications; Semiconducting silicon compounds; Silica

ST Molybdenum blue method; Inductively coupled plasmas (ICP); Boric acid

ET O*Si; SiO2; Si cp; cp; O cp; F*H; HF; H cp; F cp; Si; 28Si; is; Si is

L58 ANSWER 3 OF 57 HCAPLUS COPYRIGHT 2000 ACS

AN 1998:240467 HCAPLUS

DN 129:33484

TI Continuous measurement of the boron-10 concentration in PWR circuits

AU Nopitsch, K.; Bauer, H.; Schindhelm, F.; Wiening, K. H.; Stemmer, F. J.

CS Germany

SO VGB Tech. Ver. Grosskraftwerksbetr., [Tagungsber.] VGB-TB (1997), VGB-TB 433, VGB-Konferenz "Chemie im Kraftwerk 1997", N2/1-N2/9
CODEN: VTVVDR; ISSN: 0722-3951

DT Report

LA German

CC 71-3 (Nuclear Technology)
Section cross-reference(s): 79

AB In the PWR facility, boric acid is introduced to control the reactivity of the **coolant**. The boric acid concn. can be varied within wide limits by using the auxiliary system of the reactor. The 10B neutron physics-effective isotope is contained in amts. up to .apprx.20% in naturally occurring B. In advanced fuel element concepts with a higher level of fissile material enrichment, the monitoring of the 10B concn. in the **coolant** conducting lines is relevant with regard to safety. With COMBO (Continuous Measurement of Boron Concn.), there is now a measuring system which permits a continuous measurement of the B concn. in the primary circuit and the adjacent reactor auxiliary system. The advantages and characteristics of the COMBO system are given.

ST boron 10 addn control reactivity PWR; continuous measurement boron concn PWR **coolant**; boric acid addn **coolant** system PWR; safety boron 10 addn PWR **coolant**

IT Pressurized water nuclear reactors
(cooling systems; continuous **measurement** of the boron-10 **concn**. in PWR **coolant** circuits with added **boric acid**)

IT Nuclear reactor cooling systems
(pressurized-water; continuous **measurement** of the boron-10 **concn**. in PWR **coolant** circuits with added **boric acid**)

IT 14798-12-0, Boron-10, uses
RL: ANT (Analyte); MOA (Modifier or additive use); PRP (Properties); ANST

(Analytical study); USES (Uses)
(continuous measurement of the boron-10 concn. in PWR circuits)
IT **10043-35-3, Boric acid,** uses
RL: **ANT (Analyte);** MOA (Modifier or additive use); PRP (Properties); ANST (Analytical study); USES (Uses)
(continuous **measurement** of the boron-10 **concn.** in PWR circuits with added **boric acid**)

L58 ANSWER 4 OF 57 WPIDS COPYRIGHT 2000 DERWENT INFORMATION LTD
AN 1997-505574 [47] WPIDS
DNN N1997-421061 DNC C1997-161047
TI Determining lithium content of nuclear reactor primary **coolant** - comprises determining boron concentration and using with conductivity measurement to determine lithium concentration.
DC K05 S03
IN BRUN, C; LONG, A
PA (FRAT) FRAMATOME; (FRAT) FRAMATOME SA
CYC 9
PI EP 802410 A1 19971022 (199747)* FR 9p G01N033-18
R: BE CH DE ES GB LI NL SE
FR 2747784 A1 19971024 (199750) 18p G01N027-06
ADT EP 802410 A1 EP 1997-400785 19970404; FR 2747784 A1 FR 1996-4805 19960417
PRAI FR 1996-4805 19960417
REP 1.Jnl.Ref; FR 2616259; US 4204259
IC ICM G01N027-06; G01N033-18
ICS G21C017-022
AB EP 802410 A UPAB: 19971125
In a process for **measuring** lithium **concentration** in nuclear reactor primary cooling water, containing **boric acid** for reactor core reactivity control and lithium hydroxide for pH control, by measuring the electrical conductivity of a sample taken from the primary circuit, the boron **concentration** is also **determined** and is used together with the conductivity measurement to calculate the lithium concentration.
USE - Used especially for controlling the lithium concentration in the primary circuit **coolant** of a PWR in accordance with the varying boron concentration to achieve a constant pH and thus avoid formation of radioactive corrosion products.
ADVANTAGE - The process permits precise and reliable measurement of the instantaneous lithium concentration in the primary **coolant** irrespective of the reactor operating mode (e.g. after a rapid increase or decrease in reactor power).
Dwg.1/1
FS CPI EPI
FA AB; GI
MC CPI: K05-B06B
EPI: S03-E14B

L58 ANSWER 5 OF 57 JICST-EPlus COPYRIGHT 2000 JST
AN 970954138 JICST-EPlus
TI Development of Automatic High-concentration Boron Measurement Technique.
AU MAEDA TOSHIHIKO; HONDA SHUICHI; ITO AYUMU
CS Kyushu Electr. Power Co., Inc.
SO Kyushu Denryoku K.K. Sogo Kenkyujo Kenkyu Kiho, (1997) vol. 78, pp. 101-110. Journal Code: S0678A (Fig. 13, Tbl. 3)
ISSN: 0287-9263
CY Japan
DT Journal; Article
LA Japanese
STA New
AB IN the pressurived type nuclear power plant, it controls the nuclear reaction by adding boron in the primary coolant, and reuses boron by concentrating by the **boric acid** recovery system.Since the analysis accuracy of this boron concentration confirmation by manual

analysis is not good, it developed the automatic measurement technology of boron carrying out automatic measurement.This paper explained the followings : selection of the detection method ; measurement principle of the density hydrometer, relation of the **boric acid** water density and boron concentration ; influence of the coexistence substance ; and the demonstration experiment by the system water.As the features of this technology, it can measure the **boric acid** water of high **concentration** directly, and boron **measurement** of not only the high-concentration region but also the low-concentration region is possible.It can simultaneously expect the labor saving of operation control of the acid recovery system and the efficiency improvement of the chemical analysis services.

CC MD04040P (621.039.534)

CT **concentration determination**; boron; cooling water; PWR type reactor; **boric acid**; recovery of useful material; chemical analysis; reactor coolant; reactor cooling system; automatic measurement

BT measurement; 3B group element; element; second row element; service water; water; light water reactor; thermal neutron reactor; nuclear reactor; boron oxyacid; oxyacid; oxygen compound; oxygen group element compound; boron compound; 3B group element compound; resource recovery; recovery; analysis(separation); analysis; reactor material; material; reactor component

L58 ANSWER 6 OF 57 HCAPLUS COPYRIGHT 2000 ACS

AN 1997:55242 HCAPLUS

DN 126:110066

TI Nondestructive burnup determination of WWER-440 fuel elements. Experiences with the measuring apparatus FAMOS III KOLA

AU Simon, C. G.; Pytkin, J. N.; Korenkow, A. G.; Woronkow, A. A.

CS NUKEM GmbH, Alzenau, 63755, Germany

SO Tagungsber. - Jahrestag. Kerntech. (1996) 446-449
CODEN: TJKEDX; ISSN: 0720-9207

PB INFORUM Verlags- und Verwaltungsgesellschaft

DT Journal

LA German

CC 71-5 (Nuclear Technology)

AB For use in Russian nuclear power plants, NUKEM has developed a special measuring app. FAMOS III (Fuel Assembly Monitoring System), with which a nondestructive detn. of the burnup of WWER-440 fuel elements can be carried out. The use of FAMOS has become necessary on the basis of criticality safety. The method uses so-called passive neutron measurements to **det.** burnup, involving **boric acid concn. measurements**. In an example, a comparison of the measured with the calcd. burnup is demonstrated.

ST reactor fuel burnup passive neutron measurement; WWR fuel burnup detn measuring app; **boric acid concn measurement** fuel burnup; safety nondestructive burnup detn WWR fuel

IT Fuel assemblies
(WWR; nondestructive burnup detn. of WWER-440 fuel assemblies and experiences with measuring app. FAMOS III KOLA)

IT Water-cooled water-moderated nuclear reactors
(fuel assemblies; nondestructive burnup detn. of WWER-440 fuel assemblies and experiences with measuring app. FAMOS III KOLA)

IT Nuclear fuels
(nondestructive burnup detn. of WWER-440 fuel elements and experiences with measuring app. FAMOS III KOLA)

IT **10043-35-3, Boric acid (H3BO3)**, uses
RL: **ANT (Analyte)**; PRP (Properties); TEM (Technical or engineered material use); ANST (Analytical study); USES (Uses)
(nondestructive burnup detn. of WWER-440 fuel elements by socalled passive neutron measurement involving **detn. of boric acid concns.**)

L58 ANSWER 7 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1995:857300 HCAPLUS
DN 123:357814
TI Continuous **determination** of HCOO- and **H3BO3** **concentration** in Cr(III) plating bath
AU Zhang, Pijian; Wang, Xiaoling; Wang, Fengge; Zou, Lizhuang
CS Department of Chemistry, Yantai Normal College, Yantai, 264025, Peop. Rep. China
SO Cailiao Baohu (1995), 28(7), 23-4
CODEN: CAIBE3; ISSN: 1001-1560
DT Journal
LA Chinese
CC 79-6 (Inorganic Analytical Chemistry)
Section cross-reference(s): 80
AB HCOO- and H3BO3 were detd. continuously by titrn. The interferences by Cr3+ and NH4+ were eliminated by removal of the ions with boiling alk. solns. The end points were detected by the 2nd differential curves.
ST formate boric acid continuous detn titrn; chromium plating bath analysis formate borate
IT Electrodeposition and Electroplating
(continuous **detn.** of HCOO- and **H3BO3 concn** . in Cr(III) plating bath)
IT 7440-47-3, Chromium, analysis
RL: AMX (Analytical matrix); NUU (Nonbiological use, unclassified); ANST (Analytical study); USES (Uses)
(continuous **detn.** of HCOO- and **H3BO3 concn** . in Cr(III) plating bath)
IT 71-47-6, Formate, analysis **10043-35-3, Boric acid**, analysis
RL: **ANT (Analyte)**; ANST (Analytical study)
(continuous **detn.** of HCOO- and **H3BO3 concn** . in Cr(III) plating bath)

L58 ANSWER 8 OF 57 CEABA COPYRIGHT 2000 DECHEMA
AN 1995:39815 CEABA
TI Online process monitoring of an automated galvanic plating plant via HPLC
HPLC als analytisches Instrument zur Badueberwachung eines galvanischen Nickeldispersionselektrolyten
AU Froehler, M.; Mielsch, G.; Mrotzek, G. (BMW, Muenchen, D)
SO GIT, Fachz. Lab. (1994) 38(4), p.298-303, 8f,111
CODEN: GITEAR ISSN: 0016-3538
DT Journal
LA German
AB The galvanic solution for covering cylinder barrels of aluminium crankcases with a nickel-siliconcarbide-coating contains NiSO4, **H3BO3**, SiC, saccharine (hardening agent) and decomposition products of saccharine (o-sulfobenzoic acid, benzamide, o-toluene sulfonamide etc.) which affect the galvanic process. The quantitative analysis of saccharine and its metabolites is carried out by HPLC. The process is monitored by an on-line analysis **determining** the **concentrations** of NiSO4 and impurities (Al, Zn etc) and an off-line analysis of SiC, **H3BO3**, saccharine and the decomposition products. With an automated galvanic plant like this, an adjustment of the solutions composition or a regeneration is possible. The saccharine decomposition products and all the other organic compounds are eliminated by an catalytically induced oxygenation process. (H.Schrod)
CC 5823 Electrochemical processes
226 Analysis and data processing
6434 Chromatographic methods
CT HIGH-PERFORMANCE-LIQUID CHROMATOGRAPHY; ONLINE MONITORING; PLATING; PROCESS MONITORING
ST ONLINE

L58 ANSWER 9 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1994:519684 HCAPLUS
DN 121:119684
TI Experimental and analytical studies of boric acid concentrations in a WWER-440 reactor during the long-term cooling period of loss-of-**coolant** accidents
AU Tuunanen, J.; Tuomisto, H.; Raussi, P.
CS Technical Research Centre of Finland (VTT), Nuclear Engineering Laboratory (YDI), PO Box 20, Lappeenranta, 53851, Finland
SO Nucl. Eng. Des. (1994), 148(2-3), 217-31
CODEN: NEDEAU; ISSN: 0029-5493
DT Journal
LA English
CC 71-3 (Nuclear Technology)
AB Concg. and mixing of H3BO3 during the long-term cooling period of loss-of-**coolant** accidents (LOCAs) in the Loviisa WWER-440 reactors was studied with the REWET-II and VEERA facilities. To get more detailed information on H3BO3 mass transfer, a specific facility was built to simulate B mixing in the lower plenum of the reactor. The expts. with the VEERA facility showed that in the WWER-440 reactor fuel bundles the mixing is complete due to boiling and U-tube oscillations and, hence, the concn. distribution of H3BO3 in the bundles is uniform. The U-tube oscillations are an important mechanism in transferring concd. H3BO3 from the core to the lower plenum. The expts. demonstrated that crystn. of H3BO3 in the reactor core simulator is possible, if a stable long-term cooling situation with water boiling in the core continues long enough. In the expts., the crystn. of H3BO3 in the core simulator led to a flow blockage of the fuel rod bundle and overheating of the rod simulators when the flow through the core ceased. Exptl. results were used to develop a computational model for calcns. of H3BO3 concns. in the reactor during LOCAs. The development work was supported with a series of RELAP5/MOD3 small-break LOCA analyses. The results of the RELAP5/MOD3 calcns. were used to det. the boundary conditions under which concn. of the H3BO3 might occur. Reactor anal. showed that the crystn. of H3BO3 in the reactor is not possible during the long-term cooling period of LOCAs. This is mainly due to the fact that the ice-condenser in the Loviisa plant contains Na2B4O7.10H2O (borax), which enters the reactor when emergency core cooling water is taken from the sump. Borax increases greatly the soly. of H3BO3 in water and, hence, decreases the risk of crystn.
ST WWR **coolant** loss accident boric acid; reactor **coolant** accident cooling period
IT Computer program
(for **boric acid concn. measurements** in reactor during loss-of-**coolant** accidents, RELAP5/MOD3)
IT Simulation and Modeling, physicochemical
(of WWER-440 reactor boron concns.)
IT Nuclear reactors, water-cooled
(WWR, accidents, loss-of-**coolant**, boric acid concns. in WWER-440, during long-term cooling)
IT 10043-35-3, Boric acid, uses
RL: USES (Uses)
(concns. of, in WWER-440 reactor during long-term cooling period of loss-of-**coolant** accidents)
IT 1303-96-4, Borax
RL: PROC (Process)
(in ice-condenser in Loviisa nuclear power plant during long-term cooling period of loss-of-**coolant** accidents)

L58 ANSWER 10 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1995:97412 HCAPLUS
DN 122:45196
TI **Determination** of **H3BO3 concentration** in Cr(III) plating bath

AU Li, Huidong; Duan, Shuzhen; Zhang, Xin
CS Beijung Univ. Stir Tech., Buijing, Peop. Rep. China
SO Cailiao Baohu (1994), 27(3), 29-30
CODEN: CAIBE3; ISSN: 1001-1560
DT Journal
LA Chinese
CC 79-6 (Inorganic Analytical Chemistry)
Section cross-reference(s): 72
AB An acid-base titrn. is studied for the **detn.** of **H3BO3** **concn.** in Cr(III) plating bath. The interference of Cr3+ and NH4+ are eliminated by alkalization and sepn. The titrn. is performed using cresol red as indicator.
ST boric acid detn acid base titrn; plating bath copper analysis boric acid
IT Titration
(acid-base, **detn.** of **H3BO3** **concn.** in Cr(III) plating bath by acid-base titrn.)
IT **10043-35-3, Boric acid (H3BO3),**
analysis
RL: **ANT (Analyte)**; ANST (Analytical study)
(**detn.** of **H3BO3** **concn.** in Cr(III) plating bath by acid-base titrn.)
IT 1733-12-6, Cresol red
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(**detn.** of **H3BO3** **concn.** in Cr(III) plating bath by acid-base titrn.)
IT 7440-47-3, Chromium, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(**detn.** of **H3BO3** **concn.** in Cr(III) plating bath by acid-base titrn.)

L58 ANSWER 11 OF 57 WPIDS COPYRIGHT 2000 DERWENT INFORMATION LTD
AN 1993-336009 [42] WPIDS
CR 1992-389961 [47]; 1993-336008 [42]; 1993-336010 [42]; 1993-395244 [49]; 1994-150369 [18]
DNN N1993-259785 DNC C1993-148593
TI Water-based fracturing fluid - comprising water, a hydratable guar polymer and an aq. soln. of boron alpha hydroxy **carboxylic** acid salt.
DC A11 A60 A97 E19 H01 Q49
IN SHARIF, S
PA (ZIRC-N) ZIRCONIUM TECHNOLOGY CORP
CYC 1
PI US 5252235 A 19931012 (199342)* 8p E21B043-26
ADT US 5252235 A Div ex US 1991-705605 19910524, US 1992-927976 19920811
FDT US 5252235 A Div ex US 5160445
PRAI US 1991-705605 19910524; US 1992-927976 19920811
IC ICM E21B043-26
AB US 5252235 A UPAB: 19940627
A water-based fracturing fluid is claimed, comprising: (a) water; (b) a hydratable polymer capable of gelling in the presence of a crosslinker, the polymer selected from galactomannan guar polymer, hydroxypropyl guar and carboxymethyl hydroxypropyl guar polymers; (c) an aq. soln. of boron alpha hydroxy **carboxylic** acid salt in which the **concn.** of boron **measured** as **boric acid** is sufficient to establish a cationic electrostatic bonding site on the hydratable polymer with the carboxy gp. and the hydroxyl gp. sharing the cation.

The hdyratable polymer is present in the water base fracturing fluid at 20-60lb/1000 gallons of water, and the aq. soln. of boron alpha hydroxy **carboxylic** acid salt is present in the water base fracturing fluid at 0.5-3gals/1000 gallons of fracturing fluid.

USE/ADVANTAGE - Provides stable, conc. boric acid solns. for use in water-based fracturing fluids. The novel solns. are capable of crosslinking neutral -pH guar and substd. guar gum solns. providing delayed crosslinking action without the need for buffers to be added to

the fracturing fluid prior to addn. of the crosslinkers. The solns. are stable for in excess of 6 months and through at least 3 freeze and thaw cycles.
Dwg. 0/0
FS CPI GMPI
FA AB; DCN
MC CPI: A03-A00A; A08-D01; A12-W10B; E10-C02A; E10-C04D4; E31-Q05; H01-C03

L58 ANSWER 12 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1992:486348 HCAPLUS
DN 117:86348
TI Sample diluent containing bistris and boric acid for measurement with ion-selective electrodes and method of using the same
IN Sekiguchi, Mitsuo; Furuta, Yoshiteru; Tokinaga, Daizo
PA Hitachi, Ltd., Japan
SO Eur. Pat. Appl., 8 pp.
CODEN: EPXXDW
DT Patent
LA English
IC ICM G01N033-84
ICS G01N027-30
CC 9-7 (Biochemical Methods)
Section cross-reference(s): 79
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI EP 469468	A2	19920205	EP 1991-112502	19910725
EP 469468	A3	19930609		
EP 469468	B1	19950412		
R: DE, FR, GB, IT				
JP 05209857	A2	19930820	JP 1991-184330	19910724
CA 2048142	AA	19920131	CA 1991-2048142	19910730
CA 2048142	C	19950404		
US 5228973	A	19930720	US 1991-737696	19910730
PRAI JP 1990-199296		19900730		

AB A diluent for samples for **detn.** of ion **concn.** using ion-selective electrodes comprises an aq. soln. contg. bistris and **boric acid.** Na+, K+, and Cl- were detd. in blood serum and urine samples dild. with bistris-boric acid soln.; the soln. was a very good buffer.
ST bistris boric acid buffer ion electrode; sodium selective electrode diluent; potassium selective electrode diluent; chloride selective electrode diluent; urine diluent buffer bistris boric acid; blood diluent buffer bistris boric acid
IT Electrolytes, biological
(detn. of, in body fluid by ion-selective electrode, bistris-boric acid sample diluent for)
IT Blood analysis
Body fluid
Urine analysis
(ions detn. in, by ion-selective electrodes, bistris-boric acid sample diluent for)
IT Electrodes
(chloride-selective, bistris-boric acid sample diluent for)
IT Electrodes
(ion-selective, bistris-boric acid sample diluent for)
IT Electrodes
(potassium-selective, bistris-boric acid sample diluent for)
IT Electrodes
(sodium-selective, bistris-boric acid sample diluent for)
IT 142108-68-7
RL: ANST (Analytical study)
(as sample diluent for ion detn. using ion-selective electrodes)
IT 16887-00-6, Chloride, analysis

RL: **ANT (Analyte)**; ANST (Analytical study)
(detn. of, by chloride-selective electrode, bistris-**boric acid** sample diluent for)
IT 7440-09-7, Potassium, analysis
RL: **ANT (Analyte)**; ANST (Analytical study)
(detn. of, by potassium-selective electrode, bistris-**boric acid** sample diluent for)
IT 7440-23-5, Sodium, analysis
RL: **ANT (Analyte)**; ANST (Analytical study)
(detn. of, by sodium-selective electrode, bistris-**boric acid** sample diluent for)

L58 ANSWER 13 OF 57 WPIDS COPYRIGHT 2000 DERWENT INFORMATION LTD
AN 1992-399906 [49] WPIDS
DNC C1992-177373
TI Controlling high temp. pH value in PWR prim **coolant** - by means of an ion exchanger and associated pH, ammonia and **boric acid concn.** and conductivity **measurement.**
DC K05
IN BRAESEL, E
PA (ENER-N) ENERGIEWERKE NORD AG
CYC 1
PI DE 4117069 A 19921126 (199249)* 4p G21C017-022
ADT DE 4117069 A DE 1991-4117069 19910522
PRAI DE 1991-4117069 19910522
IC ICM G21C017-022
AB DE 4117069 A UPAB: 19931116
The process operates on a sample stream of water taken from the prim. **coolant** and fed to the ion exchanger. The sample water is cooled, depressurised and at least partly degassed. Electrical conductivity and pH meters are arranged around the ion exchanger to monitor the correct working of the ion exchanger. In conjunction with **boric acid** and ammonia **concn. measurements**, they permit control of the alkalinity against **boric acid** operating curve used in running the reactor.
ADVANTAGE - Control of the reactor high temp. pH value is made possible by the immediate discovery of any undesired pH value fluctuations by the process, enabling necessary corrections to be made9
Dwg.0/1
FS CPI
FA AB
MC CPI: K05-B06B

L58 ANSWER 14 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1993:204224 HCAPLUS
DN 118:204224
TI The effect of temperature on the reading of neutron [absorption] analyzer for boron
AU Bartovsky, Tomas; Rypar, Vojtech; Petros, Libor; Bartovska, Lidmila
CS Ustav Fyz. Merici Tech., VSCHT, Prague, 166 28, Czech.
SO Chem. Listy (1992), 86(12), 913-19
CODEN: CHLSAC; ISSN: 0009-2770
DT Journal
LA Czech
CC 79-6 (Inorganic Analytical Chemistry)
Section cross-reference(s): 61, 71
AB The correction of **H3BO3 concn.** data **detd.** in aq. solns. in nuclear reactors by neutron absorption is proposed for the temp. range 20-80.degree.. The correction involves changes caused by temp. expansion of soln., which was detd. for concn. 4.7-49.2 kg H2BO3/m3, and by changing the effective cross area of B at. nucleus and cannot be affected by design of the analyzer. The temp. changes in sensitivity of the detector and elec. circuits and the concn. variation caused by soln. prepn. were also considered.

ST temp effect boric acid detn nuclear; neutron absorption boric acid detn; nuclear reactor analysis boric acid
IT Nuclear reactors
(boric acid detn. in water of, by neutron absorption, effect of temp. on)
IT 7440-42-8, Boron, analysis **10043-35-3, Boric acid (H3BO3)**, analysis
RL: **ANT (Analyte)**; ANST (Analytical study)
(detn. of, by neutron absorption, effect of temp. on)

L58 ANSWER 15 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1993:93382 HCAPLUS
DN 118:93382
TI Iodometric **determination** of tin in tungsten **concentrates** with zinc powder-borax-**boric acid** as flux
AU He, Zhenrong
CS Jiangxi Prov. Dayu Nonferrous Metal Refin., 341500, Peop. Rep. China
SO Fenxi Shiyanshi (1992), 11(3), 56
CODEN: FENSE4
DT Journal
LA Chinese
CC 79-6 (Inorganic Analytical Chemistry)
AB The tungsten conc. sample is melted using the title flux. W is reduced into metallic form which is not dissolved in HCl soln. Sn is detd. by iodometric titrn. without matrix interference. The method was tested with std. sample.
ST tin detn iodometric titrn; tungsten conc analysis tin; zinc borax boric acid flux tungsten
IT 7440-31-5, Tin, analysis
RL: **ANT (Analyte)**; ANST (Analytical study)
(**detn.** of, in tungsten **concs.** by iodometric titrn. using zinc powder-borax-**boric acid** mixt. flux)
IT 7440-66-6, Zinc, uses
RL: USES (Uses)
(flux contg. borax and **boric acid** and powder of, for tin **detn.** in tungsten **concs.** by iodometric titrn.)
IT **10043-35-3, Boric acid** (B(OH)3), uses
RL: USES (Uses)
(flux contg. borax and powder zinc and, for tin **detn.** in tungsten **concs.** by iodometric titrn.)
IT 1303-96-4, Borax
RL: ANST (Analytical study)
(flux contg. powder zinc and **boric acid** and, for tin **detn.** in tungsten **concs.** by iodometric titrn.)
IT 7440-33-7, Tungsten, analysis
RL: ANST (Analytical study)
(tin **detn.** in **concs.** of, by iodometric titrn. using zinc powder-borax-**boric acid** mixt. flux)

L58 ANSWER 16 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1991:549355 HCAPLUS
DN 115:149355
TI Ascorbic acid as a matrix modifier for **determination** of tin in **concentrated boric acid** solutions by electrothermal atomic absorption spectrometry
AU Volynsky, A. B.; Sedykh, E. M.; Bannykh, L. N.
CS V. I. Vernadskii Inst. Geochem. Anal. Chem., Moscow, 117975, USSR
SO Talanta (1991), 38(7), 761-5
CODEN: TLNTA2; ISSN: 0039-9140
DT Journal
LA English
CC 79-6 (Inorganic Analytical Chemistry)
AB The at.-absorption signal of tin is reduced in the presence of 5 .mu.L of

0.05-0.30M boric acid at stabilized temp. platform furnace conditions. The reason is the formation of SnB(g) at the atomization stage. In the presence of palladium chloride the interferences from 0.2M boric acid are reduced by a factor of 1.3. The interferences are reduced most effectively when the sample is atomized from a polycryst. graphite platform or in the presence of ascorbic acid. The interference of up to 0.2M boric acid can be suppressed and the area of the tin signal doubled. The obsd. phenomenon is connected with the bonding of boron as non-volatile B4C. Ascorbic acid is the most effective matrix modifier for the detn. of trace elements in boron compds.

ST tin detn electrothermal atomic absorption spectrometry; boric acid concd analysis tin; ascorbic acid matrix modifier tin AAS

IT 50-81-7, Ascorbic acid, uses and miscellaneous
RL: USES (Uses)
(as matrix modifier for tin detn. in boric acid by electrothermal at. absorption spectrometry)

IT 7440-05-3, Palladium, uses and miscellaneous
RL: USES (Uses)
(as matrix modifier in tin electrothermal at. absorption spectrometric detn. in presence of boric acid)

IT 7440-31-5, Tin, analysis
RL: **ANT (Analyte)**; ANST (Analytical study)
(**detn.** of, in **concd. boric acid** by electrothermal at. absorption spectrometry, ascorbic acid as matrix modifier in)

IT 10043-35-3, Boric acid, analysis
RL: AMX (Analytical matrix); ANST (Analytical study)
(tin detn. in, by electrothermal at. absorption spectrometry, ascorbic acid as matrix modifier in)

L58 ANSWER 17 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1991:693995 HCAPLUS
DN 115:293995
TI Fluorometric determination of boron with chromotropic acid by flow-injection analysis
AU Motomizu, S.; Oshima, M.; Jun, Z.
CS Fac. Sci., Okayama Univ., Okayama, 700, Japan
SO Anal. Chim. Acta (1991), 251(1-2), 269-74
CODEN: ACACAM; ISSN: 0003-2670
DT Journal
LA English
CC 79-6 (Inorganic Analytical Chemistry)
Section cross-reference(s): 61

AB Boron as boric acid was detd. with chromotropic acid using a fluorescence detection-flow injection system. The flow system consisted of three streams, a carrier, a reagent and an alk. soln. By mixing 0.5M sodium hydroxide soln. as the alk. soln., the high background fluorescence of the reagent was diminished and the sensitivity was enhanced. The **determinable concn.** of **boric acid** was in the range 1 .times. 10-8-1 .times. 10-4M. The detection limit was 5 .times. 10-9M of boron, corresponding to a signal-to-noise ratio of 3. The sample throughput was 60 h-1. The method was applied to the detn. of boron as boric acid in water samples.

ST boron detn flow injection fluorometry; boric acid flow injection fluorometry; chromotropic acid reagent boron; water analysis boron

IT 7732-18-5, Water, analysis
RL: AMX (Analytical matrix); ANST (Analytical study)
(boron detn. in, by flow-injection fluorometry)

IT 7440-42-8, Boron, analysis **10043-35-3, Boric acid**, analysis
RL: **ANT (Analyte)**; ANST (Analytical study)
(detn. of, by flow-injection fluorometry)

IT 148-25-4, Chromotropic acid
RL: ANST (Analytical study)

(in boron detn. by flow-injection fluorometry)

L58 ANSWER 18 OF 57 COMPENDEX COPYRIGHT 2000 EI
AN 1992(3):30904 COMPENDEX DN 920336511
TI Monitoring the boron concentration in the vver-1000 reactor **coolant** by recording multiple gamma quanta of 7Li nuclei.
AU Zhemzhurov, M.L. (Acad of Sciences of the Belorussian SSR, USSR); Levadnyi, V.A.; Lukhvich, A.A.
SO Sov At Energy v 70 n 3 Sep 1991 p 242-245
CODEN: SATEAZ ISSN: 0038-531X
PY 1991
DT Journal
TC General Review
LA English
AB Compared with discrete methods of manual monitoring, qualitatively new capabilities of reactivity control are provided by continuous inner-circuit monitoring of the **boric acid** concentration in the **coolant**.The currently used neutron absorption method for continuous monitoring has shortcomings such as inertia (2-5 min), a large measurement error (not less than 4%), and the need for an external neutron source.These shortcomings have stimulated research on new nuclear physics methods facilitating a reliable, continuous innercircuit monitoring of the 10B concentration (boron, **boric acid**) directly in the **coolant** of a reactor working at full power.The authors consider in this article the **measurement** of the 10B **concentration** in the **coolant** by recording the multiple 477.7 keV gamma quanta of excited 7Li nuclei which are produced in the current of the circulating **coolant** in the 10B(n, alpha)7Li reaction initiated by the neutron emission of 17N.3.
CC 621 Nuclear Reactors; 542 Light Metals & Alloys; 549 Nonferrous Metals & Alloys; 804 Chemical Products; 622 Radioactive Materials
CT *NUCLEAR REACTORS:Cooling Systems; **GAMMA RAYS:Measurements**; LITHIUM AND ALLOYS:Radioactivity; **BORON:Measurements**
ST REACTIVITY CONTROL
ET B; 10B; is; B is; Li; 7Li; Li is; B(n,alpha)Li; 10B(n,alpha)7Li; 10B t; n r; n alpha ; 7Li f

L58 ANSWER 19 OF 57 COMPENDEX COPYRIGHT 2000 EI DUPLICATE 1
AN 1991(9):106466 COMPENDEX DN 9109109476
TI Development of boric acid concentration meter for advanced thermal reactors.
AU Arita, Tadaaki (Sumitomo Heavy Ind., Ltd, Jpn); Aoi, Hideki; Hayashi, Ken-ichi; Tominaga, Hiroshi; Iijima, Takashi; Wada, Nobuo; Tachikawa, Noboru
SO Nippon Genshiryoku Gakkaishi v 33 n 2 Feb 1991 p 152-160
CODEN: NGEGAL ISSN: 0004-7120
PY 1991
DT Journal
TC Application; General Review; Experimental
LA Japanese
AB A **boric acid** concentration meter was developed for continuous **measurement** of the 10B **concentration** in heavy water in a nuclear reactor.The principle of the meter is based on slowing-down of fast neutrons from a radioisotopic neutron source by heavy water and absorption of slowed-down neutrons by 10B depending on its concentraion.The errors in the measurement are casused by temperature changes, photoneutron generation etc.in sampled heavy water and instrumental instability of a neutron measuring system.Laboratory tests with fresh heavy water containing no gamma -emitter and demonstration tests at 'FUGEN' power plant were carried out, to evaluate the factors of errors separately, and correction techniques for photoneutrons etc.were developed.The results of the tests showed that the meter developed had a measurement precision better than plus or minus 0.1ppm 10B in a range of 0

approx.30 ppm10B.(Author abstract) 4 Refs.In Japanese.
CC 944 Moisture, Pressure & Temperature, & Radiation Measuring Instruments; 804 Chemical Products; 621 Nuclear Reactors
CT *NUCLEAR INSTRUMENTATION; **NUCLEAR REACTORS:Measurements**; **ACIDS:Measurements**
ST BORIC ACID; CONCENTRATION METERS
ET B; 10B; is; B is

L58 ANSWER 20 OF 57 JICST-EPlus COPYRIGHT 2000 JST
AN 900527671 JICST-EPlus
TI Two cases of boric acid ingestion.
AU NISHIMURA RIEKO; HIRABAYASHI YOICHI; HASUI MASASHI; KOBAYASHI YONOSUKE; YOSHIDA MANABU; ISHIDA TETSUO
CS Kansai Medical Univ.
SO Shonika (Pediatrics of Japan), (1990) vol. 31, no. 4, pp. 497-500. Journal Code: Z0442B (Fig. 1, Tbl. 1, Ref. 11)
ISSN: 0037-4121
CY Japan
DT Journal; Article
LA Japanese
STA New
CC GD06010Q (616.39-099)
CT human(primates); case report; **boric acid**; swallowing; urinary excretion; baby; infantile disease; accident; quantitative analysis(analytical chemistry); blood concentration; **concentration determination**; color reaction; drug poisoning; aspiration of food; diene; phenolic compound; natural colorant; biopigment; phenol ether; enone
BT reporting; action and behavior; boron oxyacid; oxyacid; oxygen compound; oxygen group element compound; boron compound; 3B group element compound; digestive system physiology; excretion; child; growth stage; disease; analysis(separation); analysis; concentration(ratio); degree; measurement; detection method; poisoning(disease); error(mistake); polyene; olefin compound; hydroxy compound; aromatic compound; food coloring agent; food additive; additive; admixture; material; coloring matter; ether; unsaturated ketone; ketone; carbonyl compound

L58 ANSWER 21 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1992:520253 HCAPLUS
DN 117:120253
TI Concentration dependence of the reading of a boron-measuring instrument using neutron absorption
AU Bartovsky, Tomas; Petros, Libor; Racek, Jaroslav; Kysela, Jan; Bartovska, Lidmila
CS VSCHT, Prague, Czech.
SO Sb. Vys. Sk. Chem.-Technol. Praze, P: Fyz. Mater. Merici Tech. (1990), P11, 85-101
CODEN: PFMMDT; ISSN: 0139-7575
DT Journal
LA Czech
CC 71-7 (Nuclear Technology)
Section cross-reference(s): 79
AB Instruments used for **measuring** the **concn.** of **H3BO3** by n absorption are described. A comparison of different arrangements is made. Data measured by the authors as well as data from other sources are discussed. Recommendations for the best arrangement are stated, and the simplicity of calcns. and the influence of noise on the resulting precision are considered.
ST concn dependence neutron absorption boron; **boric acid concn measurement** app; boron concn measurement app
IT 12586-31-1, Neutron
RL: USES (Uses)
(absorption of, concn. dependence of reading of boron-measuring instrument using)

IT 7440-42-8, Boron, analysis
RL: ANT (Analyte); ANST (Analytical study)
(concn. detn. of, by neutron absorption, instrument reading dependence in relation to)
IT **10043-35-3, Boric acid (H3BO3),**
analysis
RL: **ANT (Analyte)**; ANST (Analytical study)
(**concn. detn.** of, by neutron absorption, instrument reading dependence on concn. of boron in relation to)

L58 ANSWER 22 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1990:100620 HCAPLUS
DN 112:100620
TI Determination of poly(vinyl alcohol) in fabric desizing aqueous solution
IN Santo, Yoshiteru; Nakano, Eiichi; Ishidoshiro, Hiroshi
PA Sando Iron Works Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM G01N021-77
ICS G01N031-00; G01N033-36
CC 40-8 (Textiles and Fibers)
Section cross-reference(s): 80
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 01250049	A2	19891005	JP 1988-77499	19880330

AB Poly(vinyl alc.) (I) in the soln., produced in a continuous desizing machine, is **detd.** by controlling I **concn.** .apprx.3-12 ppm, coloring with 1.5% **H3BO3** and 50 ppm I, and measuring the transmittance.
ST polyvinyl alc detn desizing soln; desizing fabric pretreatment analysis
IT Textiles
(desizing pretreatment soln. for, poly(vinyl alc.) detn. in, by colorimetry)
IT Sizes
(removal of, pretreatment soln. for, poly(vinyl alc.) detn. in, colorimetry)
IT 9002-89-5, Poly(vinyl alcohol)
RL: **ANT (Analyte)**; ANST (Analytical study)
(detn. of, by colorimetry with iodine and **boric acid** , in fabric desizing soln.)
IT 7553-56-2, Iodine, uses and miscellaneous 10043-35-3, Boric acid, uses and miscellaneous
RL: USES (Uses)
(poly(vinyl alc.) colored by, for detn., in fabric desizing soln.)

L58 ANSWER 23 OF 57 NTIS COPYRIGHT 2000 NTIS
AN 1990(01):803 NTIS Order Number: DE89617891/XAD
TI Determination of Boron as Boric Acid by Automatic Potentiometric Titration.
AU Midgley, D.
CS Central Electricity Generating Board, Leatherhead (England). Central Electricity Research Labs
(005816001; 7041090)
NR DE89617891/XAD; CEGB-TPRD/L-3259/R88; PWR/ASG/P-87-9
16 p. NTIS Prices: PC A03/MF A01
Availability: U.S. Sales Only.
PD Jun 1988
LA English CY United Kingdom
OS GRA&I9001; Atomindex citation 20:048048
AB Boron in PWR primary coolant and related waters may be determined as boric acid by titration with sodium hydroxide, using a glass electrode as a pH

indicator. With a modern automatic titrator, the analysis is quick, convenient, accurate and precise. In the titration of 8 mg B (e.g. 4 ml of 2000 mg/l solution), no significant bias was observed and relative standard deviations were about 0.25%. With 0.8 g B, a bias of about 2% appears, although this could be reduced by restandardizing the titrant, but the relative standard deviation was still < 0.5%. The lithium hydroxide added to primary coolant would cause a negative bias, but a simple correction may be applied using the routinely determined lithium concentration. The titrator is, therefore, suitable for routine use in a PWR station, where the primary coolant contains 100-2000 mg/l B, depending on the stage of the fuel cycle.

CC 77J Reactor materials
97Q Selected studies in nuclear technology
99A Analytical chemistry

CT *Boron; *Primary Coolant Circuits; *Quantitative Chemical Analysis; Boric Acid; PWR Type Reactors; Potentiometry; Sodium Hydroxides
*Foreign technology

UT ENERGY CL 400102; ENERGY CL 210200; NTISINIS

L58 ANSWER 24 OF 57 JICST-EPlus COPYRIGHT 2000 JST
AN 880482810 JICST-EPlus
TI Review on the present situation in water chemistry monitoring systems in the nuclear power plants in Finland.
AU CHANFREAU E; AALTONEN P
PAAVOLA A
REINWALL A
CS Technical Research Centre of Finland, Espoo, FIN
Imatra Power Co., Loviisa, FIN
Industrial Power Co., Olkiluoto, FIN
SO Proc 1988 JAIF Int Conf Water Chem Nucl Power Plants Vol 2, (1988) pp. 622-628. Journal Code: K19880574 (Fig. 5, Tbl. 1, Ref. 2)
CY Japan
DT Conference; Commentary
LA English
STA New
CC MD05040W; MD04040P (621.039.568; 621.039.534)
CT Finland; PWR type reactor; BWR type reactor; nuclear power generation; power plant; common use; reactor cooling system; reactor coolant; cooling water; boiler feed water; water quality; water management; monitor; automatic monitoring; online system; hydrogen ion concentration; hydrogen; **boric acid**; electrical conductivity; oxygen; sodium; **concentration determination**; dissolved component; dissolved oxygen; corrosion prevention; measurement error
BT Scandinavia Countries; Europe; light water reactor; thermal neutron reactor; nuclear reactor; power generation; electric power energy operation; electric power facility; action and behavior; reactor component; reactor material; material; service water; water; property; management; equipment; monitoring; system; acidity; degree; concentration(ratio); element; boron oxyacid; oxyacid; oxygen compound; oxygen group element compound; boron compound; 3B group element compound; ratio; transport coefficient; coefficient; oxygen group element; second row element; alkali metal; metallic element; third row element; measurement; component; dissolved gas(entrainment); gas; error(measure)

L58 ANSWER 25 OF 57 JICST-EPlus COPYRIGHT 2000 JST
AN 880432619 JICST-EPlus
TI Development of the **boric acid concentration measuring** instrument for advanced thermal reactors.
AU ARITA TADAAKI
OKUBO SEISHIRO
CS Sumitomo Heavy Industries, Ltd.
Power Reactor and Nuclear Fuel Development Corp.
SO Nippon Aisotopu, Hoshasen Sogo Kaigi Ronbunshu (Proceedings of the Japan Conference on Radiation and Radioisotopes), (1988) vol. 18th, pp. 290-304.

Journal Code: F0880A (Fig. 6, Ref. 2)
CY Japan
DT Conference; Commentary
LA Japanese
STA New
CC MD05030L (621.039.564)
CT heavy water reactor; **boric acid**; boron isotope; neutron moderator; **concentration determination**; measuring instrument; heavy water; neutron detection; calibration; correction(compensation); testing device; instrumentation; time course; measurement error
BT thermal neutron reactor; nuclear reactor; boron oxyacid; oxyacid; oxygen compound; oxygen group element compound; boron compound; 3B group element compound; light nucleus; atomic nucleus; isotope; material; measurement; deuterium compound; compound(chemical); water; radiation detection; detection; correction(modification); equipment; variation; error(measure)

L58 ANSWER 26 OF 57 CEABA COPYRIGHT 2000 DECHEMA
AN 1989:50827 CEABA
TI Chromium trace determination in inorganic, organic and aqueous samples with isotope dilution mass spectrometry
Chromspurenbestimmung in anorganischen, organischen und waessrigen Proben mit der massenspektrometrischen Isotopenverduennungsanalyse
AU Goetz, A.; Heumann, K.G. (Univ. Regensburg, D)
SO Fresenius' Z. Anal. Chem. (1988) 331(2), p.123-128, 1f,4t,341
CODEN: ZACFAU ISSN: 0016-1152
DT Journal
LA German
AB It is shown that chromium traces in different inorganic, organic and aqueous samples can be **determined** over a wide **concentration** range with isotope dilution mass spectrometry. Electrolytic or chromatographic isolation steps are added to a system of sample preparation units for oligo-element determinations to analyse chromium besides other heavy metals. The isotope ratio 52.Cr/53.Cr is measured in a thermal quadrupole mass spectrometer using a single-filament ion source with additions of silica gel and **boric acid**. In water samples, which contain humic substances, chromium concentrations of a few ng/g and less can be determined with relative standard deviations of about 1 % and better. A differentiation is possible into the total chromium content and into chromium species which carry out isotope exchange reactions and those which are inert for an isotope exchange reaction. The chromium concentrations of four standard reference materials (two plants BCR 60 and 61, one tissue BCR 278, one sewage sludge BCR 144), which are not certified for chromium, are determined to be 29.4 mg/g, 534 mg/g, 0.78 mg/g, and 466.1 mg/g, respectively. The detection limit is 0.3 pg chromium per g for water samples, 1.8 ng/g for organic substances, and 6 ng/g for materials with high inorganic proportions as for sediments, sewage sludges and soils. (Author)
CC 2213 Physical methods
225 Analytical equipment
CT CHROMIUM; MASS SPECTROMETRY; TRACE ANALYSIS
ST SAMPLE; FUSION PROCESS; ORGANIC; INORGANIC; AQUEOUS; ISOTOPE DILUTION; CHROMSPURENBESTIMMUNG; CHEMISCHES AUFSCHLIESSEN

L58 ANSWER 27 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1988:212121 HCAPLUS
DN 108:212121
TI Changes in the pH of reactor water at nuclear power plants with water-cooled water-moderated reactors during operation
AU Khil'debrandt, N. I.; Nikitin, A. V.
CS Mosk. Energ. Inst., Moscow, USSR
SO Teploenergetika (Moscow) (1988), (4), 58-60
CODEN: TPLOA5; ISSN: 0040-3636
DT Journal

LA Russian
CC 71-4 (Nuclear Technology)
AB The principal parameter used for monitoring and regulating the water-chem. conditions of the primary circuit of a nuclear power plant with a WWER is the pH of the **coolant**. The ratio was **detd**. between the **concns**. of **H3BO3** and alkali (KOH, LiOH, NaOH) at which the pH is 7. The dependence is shown of the pH on the concn. of H3BO3 and alkali at 25.degree. and const. concn. of NH3 of 10 mg/kg. The ratio of the overall concn. of alkali metals (calcd. with respect to K+) and the concn. of H3BO3 maintained in the reactor water of the WWER-1000 is presented. The change in pH of the **coolant** of the WWER-440 and WWER-1000 reactors at the inlet temp. in the core during the operating period is also shown.
ST pH reactor water power plant; boric acid alkali reactor water; WWR water chem pH effect
IT Nuclear reactors, water-cooled
(WWR, power plants, pH changes of water of, during full-power operation)
IT 1310-58-3, Potassium hydroxide, properties 1310-65-2, Lithium hydroxide 1310-73-2, Sodium hydroxide, properties 10043-35-3, Boric acid (H3BO3), properties
RL: PRP (Properties)
(pH change of WWR water contg., in nuclear power plants)
IT 7664-41-7, Ammonia, properties
RL: PRP (Properties)
(pH dependence on boric acid and alkali concns. in WWR water contg.)

L58 ANSWER 28 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1989:241706 HCAPLUS
DN 110:241706
TI Potentiometric determination of boric acid in nickel electroplating baths
AU Nabivanets, B. I.; Gorina, D. O.; Sobol, T. A.
CS USSR
SO Vestn. Kiev. Politekh. Inst., Khim. Mashinostr. Tekhnol. (1988), 25, 25-6
CODEN: VKMTAC; ISSN: 0372-6045
DT Journal
LA Russian
CC 79-6 (Inorganic Analytical Chemistry)
Section cross-reference(s): 72
AB H3BO3 was detd. in Ni electroplating baths by potentiometric titrn. without removing Ni. Mannitol was added to form a stronger acid and the end-point of the titrn. with alkali was detected by monitoring the pH change by a glass electrode. The optimal **concn**. of the **detd. H3BO3** is 10-40 g/L. A formula is given for the calcn.
ST boric acid detn potentiometric titrn; mannitol reagent boric acid detn; nickel electroplating bath analysis boric acid
IT **10043-35-3, Boric acid,** analysis
RL: **ANT (Analyte)**; ANST (Analytical study)
(detn. of, in nickel electroplating baths by potentiometric titrn.)
IT 7440-02-0, Nickel, uses and miscellaneous
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(electroplating of, boric acid detn. in baths for)

L58 ANSWER 29 OF 57 JICST-EPlus COPYRIGHT 2000 JST
AN 860531458 JICST-EPlus
TI Determination of atmospheric NH3 using with a diffusion sampler.
AU ISHII KOICHIRO; AOKI KAZUYUKI
CS Tokyotokankyokaken
SO Tokyoto Kankyo Kagaku Kenkyujo Nenpo (Annual Report of the Tokyo Metropolitan Research Institute for Environmental Protection), (1986) vol. 1986, pp. 39-43. Journal Code: S0679A (Fig. 4, Tbl. 1, Ref. 17)
CY Japan
DT Journal; Article

LA Japanese
STA New
CC SB03040I (614.71/.73:543.27)
CT air pollution; ammonia; air quality test; **concentration determination**; sampling; sampler; personal monitoring; air monitoring; pollution monitoring; **boric acid**; detection limit; measurement accuracy; air pollutant; ether; aliphatic alcohol; nitrogen heterocyclic compound
BT environmental pollution; pollution; hydride; hydrogen compound; nitrogen compound; nitrogen group element compound; test; analysis(separation); analysis; measurement; sampling and winning; experimental tool; utensil; monitoring; boron oxyacid; oxyacid; oxygen compound; oxygen group element compound; boron compound; 3B group element compound; limit; concentration(ratio); degree; accuracy; pollutant; matter; alcohol; hydroxy compound; heterocyclic compound

L58 ANSWER 30 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1987:39943 HCAPLUS
DN 106:39943
TI The determination of process variables of the **coolant** and the reactor on the base of monitoring the neutron flux from the **coolant**
AU Skatkin, V. M.; Volkov, S. V.; Zhernov, V. S.
CS Union Res. Inst. Instrum., Moscow, USSR
SO Zentralinst. Kernforsch., Rossendorf Dresden, [Ber.] ZfK (1985), ZfK-568, IAEA-NPPCI Spec. Meet. New Instrum. Water Cooled React. 112-24
CODEN: ZKRDBY; ISSN: 0138-2950
DT Report
LA English
CC 71-3 (Nuclear Technology)
AB A method and a device for the measurement of the n flux absorber content in the water **coolant** of nuclear reactors in nuclear power plants are described. The method and the device may be used as well to monitor the steam content in the **coolant** of boiling reactors, and to detect failed fuel elements. The dependence of the device readings on the energy of fast n and the optimum thickness of the moderator in the presence of the external background were detd. by calcns. The high sensitivity of the method for the **measurement** of the **boric acid concn.** in the WWPR **coolant** was verified exptl.
ST neutron reactor **coolant** flux; boric acid reactor **coolant** neutron
IT Nuclear reactors, water-cooled
(**coolants** and cooling systems, process variable detn. of, neutron flux monitoring in relation to)
IT 10043-35-3, Boric acid, uses and miscellaneous
RL: USES (Uses)
(nuclear reactor **coolant**, neutron flux monitoring and process variable detn. in relation to)

L58 ANSWER 31 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1987:429710 HCAPLUS
DN 107:29710
TI Improvement of the accuracy and operational monitoring of boric acid content in reactor water during a physical start up of a nuclear power plant unit
AU D'yachkov, V. I.; Tsybul'nik, L. P.
CS USSR
SO At. Elektr. Stn. (1985), 8, 45-53
CODEN: AESTDA
DT Journal
LA Russian
CC 71-3 (Nuclear Technology)
Section cross-reference(s): 73, 79

AB A chemiluminescent automatic analyzer for H3BO3 can be used for the automated measurement during phys. and power startups, power management and generation of nuclear power plants with WWER-type reactors. The dependence is shown of the intensity of chemiluminescence on the presence of Fe2+ impurity with and without Trilon B. The spectral characteristics are shown of the different photoreceptors of chemiluminescence in the wavelength range of 350-700 mm. The range of detection of H3BO3 and the optimal concn. of alkali corresponding to it in the chemiluminescent soln. are tabulated. Results are presented of **concn. measurements** of **H3BO3** in radioactive reactor waters of units I and II of the Rovensk Nuclear Power Plant.

ST boric acid content reactor water; reactor startup power plant; chemiluminescence boric acid detn water

IT Nuclear reactors, water-cooled
(WWR, **coolants** and cooling systems, boric acid content detn. in, during startup)

IT **10043-35-3, Boric acid (H3BO3)**, analysis
RL: **ANT (Analyte)**; ANST (Analytical study)
(detn. of, in reactor water during phys. startup of nuclear power plant)

IT 64-02-8, Trilon B 7439-89-6, Iron, uses and miscellaneous
RL: PROC (Process)
(impurity, in reactor water during startup, boric acid detn. in relation to)

IT 1310-58-3, Potassium hydroxide, uses and miscellaneous 7664-41-7, Ammonia, uses and miscellaneous
RL: USES (Uses)
(in nuclear reactor power plant, monitoring of boric acid in reactor water in relation to)

L58 ANSWER 32 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1984:445006 HCAPLUS
DN 101:45006
TI Relative importance of temperature, pH and boric acid concentration on rates of hydrogen production from galvanized steel corrosion
AU Loyola, V. M.; Womelsduff, J. E.
CS Sandia Lab., Albuquerque, NM, USA
SO Report (1984), SAND-82-1179; Order No. NUREG/CR-2812, 57 pp. Avail.: NTIS From: Gov. Rep. Announce. Index (U. S.) 1984, 84(10), 198
DT Report
LA English
CC 71-3 (Nuclear Technology)
AB The corrosion of galvanized steel, to produce H2, will occur if sprays operate during a Loss-of-**Coolant** Accident in a LWR. The rates of H2 generation, however, are variable and dependent on accident and post-accident conditions. A study was made designed to identify the important parameters (temp., pH, and **H3BO3** [10043-35-3] **concn.**) in **detg.** the rates of H2 generation from LWR containment building spray solns. The data were gathered over a wide range of temp., pH, and H3BO3 concn., and are used in a 2-level, 3-factor factorial expt. to det. the relative importance of the 3 parameters to the H2 generation process. A statistical treatment of the data gives an indication of the relative importance of the parameters (temp., pH, H3BO3 concn.) and of their interactions. It attempts to fit the data to a relatively simple equation to model the interactions of the various parameters.

ST reactor accident corrosion steel hydrogen

IT Nuclear reactors, water-cooled
(LWR, accidents, effect of temp. and pH and boric acid concn. on hydrogen prodn. from galvanized steel corrosion from spraying in)

IT 12597-69-2, reactions
RL: RCT (Reactant)
(corrosion of galvanized, following LWR accident, effect of temp. and

pH and boric acid concn. on)
IT 10043-35-3, properties
RL: PRP (Properties)
(hydrogen prodn. as function of concn. of, in corrosion of galvanized steel following LWR accident)
IT 1333-74-0P, preparation
RL: PREP (Preparation)
(prodn. of, in corrosion of stainless steel following LWR accident, effect of temp. and pH and boric acid concn. on)

L58 ANSWER 33 OF 57 JICST-EPlus COPYRIGHT 2000 JST
AN 850257687 JICST-EPlus
TI A study on collecting method of ammonia in the atmosphere.
AU HIOKI TADASHI; ESAKA SHINOBU
CS Kyoto Prefect. Inst. of Hygienic and Environmental Sciences
SO Kyotofu Eisei Kogai Kenkyujo Nenpo (Annual Report of Kyoto Prefectural Institute of Hygienic and Environmental Sciences), (1984) no. 29(1983), pp. 153-156. Journal Code: Z0977A (Fig. 2, Tbl. 2, Ref. 5)
CODEN: KEKNDS; ISSN: 0389-5041
CY Japan
DT Report; Commentary
LA Japanese
STA New
CC SB03040I (614.71/.73:543.27)
CT air pollution; air pollutant; air quality test; sampling; odor material; ammonia; **concentration determination**; concentration dependence; **boric acid**; filter paper; flow rate; temperature; humidity
BT environmental pollution; pollution; pollutant; matter; test; analysis(separation); analysis; sampling and winning; smell substance; hydride; hydrogen compound; nitrogen compound; nitrogen group element compound; measurement; dependence; boron oxyacid; oxyacid; oxygen compound; oxygen group element compound; boron compound; 3B group element compound; paper; filter material; material; meteorological element; degree

L58 ANSWER 34 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1984:163968 HCAPLUS
DN 100:163968
TI Method and device for controlling the pH of the cooling water of a pressurized water nuclear reactor
IN Saurin, Pierre; Trottier, Jean Pierre; Nordmann, Francis
PA Framatome, Fr.
SO Eur. Pat. Appl., 18 pp.
CODEN: EPXXDW
DT Patent
LA French
IC G05D021-02; G21C019-30
CC 71-4 (Nuclear Technology)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 94884	A1	19831123	EP 1983-400968	19830511
	EP 94884	B1	19860820		
	R: BE, CH, DE, GB, IT, LI, SE				
	JP 58205893	A2	19831130	JP 1983-83456	19830512
PRAI	FR 1982-8218		19820512		

AB The pH of the cooling water of a PWR is controlled by continuously **measuring** the **concn.** of **H3BO3** [**10043-35-3**] in the cooling water and 1 of the 2 following parameters: the pH at room temp. and the concn. of base used in the conditions (e.g. Li2O necessary to obtain a pH at high temp. equal to a predetd. value. The amt. of conditioning base one needs to add or remove is detd. and an injection or corresponding sampling is effected in the reactor primary circuit. The characteristic chem. of the primary fluid is thus controlled to limit the radioactivity of the primary circuit.

ST cooling water PWR pH control; boric acid PWR cooling water
IT Nuclear reactors, water-cooled
(PWR, **coolants** and cooling systems, pH control of water in)
IT **10043-35-3**, analysis
RL: **ANT (Analyte)**; ANST (Analytical study)
(detn. of, continuous, pH control of PWR cooling water in relation to)
IT 12057-24-8, uses and miscellaneous
RL: USES (Uses)
(in pH control of PWR cooling water)
IT 7732-18-5, analysis
RL: ANST (Analytical study)
(pH detn. and control in)

L58 ANSWER 35 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1984:114118 HCAPLUS
DN 100:114118
TI Chemical **concentration** - flameless atomic absorption spectrometric **determination** of trace iron in high-purity **boric acid**
AU Yu, Zhijian; Zhang, Zuhong; Liu, Shuping
CS Tianjin Third Chem. Reagent Fact., Tianjin, Peop. Rep. China
SO Huaxue Shiji (1983), 5(5), 315-19
CODEN: HUSHDR
DT Journal
LA Chinese
CC 79-6 (Inorganic Analytical Chemistry)
AB Trace Fe (<0.1 ppm) in high-purity boric acid was detd. by flameless at. absorption spectrometry after enrichment by chem. means. Boric acid was reacted with MeOH in the pressure of HCl (catalyst) to give highly volatile Me borate (b.p. 68.degree.) which was readily evapd. to leave an Fe-rich residue. The method had a lower detection limit of 0.02 ppm and a relative std. error of 15%. In a test boric acid sample (contg. added 0.06 .mu.g Fe), Fe was detd. by flameless at. absorption spectrometry after chem. enrichment to be 0.059 .mu.g. The presence of .ltoreq.200 .mu.g B in the Fe-rich residue did not interfere with the detn. of 0.170 .mu.g Fe.
ST iron detn boric acid atomic absorption; boric acid analysis iron
IT 7439-89-6, analysis
RL: **ANT (Analyte)**; ANST (Analytical study)
(detn. of, in high-purity **boric acid** by flameless at. absorption spectrometry, preconcn. technique for)
IT 67-56-1, uses and miscellaneous
RL: USES (Uses)
(in iron detn. in high-purity boric acid by flameless at. absorption spectrometry)
IT 11113-50-1
RL: ANST (Analytical study)
(iron detn. in high-purity, preconcn. technique for flameless at. absorption spectrometric)

L58 ANSWER 36 OF 57 COMPENDEX COPYRIGHT 2000 EI
AN 1983(3):30123 COMPENDEX DN 830321553; *8381701
TI MEASUREMENT OF OZONE CONCENTRATION.
AU Thelamon, Claude (Lab de Rech et de Control du Caoutchouc, Montrouge, Fr)
SO Polym Test v 3 n 2 1982 p 143-150
CODEN: POTEDZ ISSN: 0142-9418
PY 1982
LA English
AB The principal methods used to **measure** ozone **concentration** are reviewed and experimental comparisons made between chemical methods, with both phosphate and **boric acid** buffers, UV absorption, and electrochemical methods.The advantages and disadvantages of the methods are considered and recommendations are made for the adoption of a standard reference method

for rubber test methods.10 refs.
CC 818 Rubber & Elastomers; 801 Chemical Analysis & Physical Chemistry; 802 Chemical Apparatus & Plants; 804 Chemical Products; 912 Industrial Engineering & Management; 943 Mechanical & Miscellaneous Measuring Instruments
CT *RUBBER TESTING:Research; **OZONE:Measurements;** CHEMICALS:Applications; ABSORPTION; ELECTROCHEMISTRY
ST OZONE CONCENTRATION MEASUREMENTS

L58 ANSWER 37 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1984:110519 HCAPLUS
DN 100:110519
TI Trial operation of the NAR-B analyzers at a nuclear power plant.
AU Shagov, S. V.; Gurkov, V. A.; Egorov, A. E.
CS USSR
SO Vopr. At. Nauki Tekh., [Ser.]: Radiats. Tekh. (1982), 2, 79-84 CODEN: VANTDI
DT Journal
LA Russian
CC 71-3 (Nuclear Technology)
Section cross-reference(s): 79
AB The exptl. use of radiation analyzers NAR-B was generalized. Results are given of the **measurement** of **H3BO3 concn.** in the primary circuit of the reactor at a min. control level using a colorimetric method and a n-absorption method.
ST radiation analyzer reactor boric acid; neutron absorption boric acid detn; **coolant** reactor boric acid detn
IT Nuclear reactors
(**coolants** and cooling systems, **boric acid concn. detn.** in primary-circuit, neutron analyzer trial operation for)
IT 7440-42-8, analysis **10043-35-3**, analysis
RL: ANST (Analytical study)
(**detn.** of **concn.** of, in nuclear reactor power plant primary circuit **coolant**)
IT 12586-31-1, chemical and physical effects
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(in boron concn. detn. in nuclear reactor power plant primary circuit **coolant**)

L58 ANSWER 38 OF 57 NTIS COPYRIGHT 2000 NTIS
AN 1982(25):1233 NTIS Order Number: DE82902875
TI Determination of Low-Thorium Content in Granites Using X-Ray Fluorescence.
AU Shigematsu, H. M.; Sato, I. M.; Iyer, S. S.
CS Instituto de Pesquisas Energeticas e Nucleares, Sao Paulo (Brazil). (074427000; 3272100)
NR DE82902875; IPEN-Pub-11; CONF-8010269-4
11 p. NTIS Prices: PC A02/MF A01
Availability: U.S. Sales Only.
Notes: 21. Brazilian congress of chemistry, Porto Alegre, Brazil, 21 Oct 1980, Portions of document are illegible.
PD Mar 1981
LA Spanish CY Brazil
OS GRA&I8225; ERA citation 07:044252
AB An analytical method for the accurate determination of low concentrations of thorium in rocks using x-ray fluorescence technique was developed. A tungsten tube was utilized for the production of x-rays. The samples were prepared in the form of double layer pressed pellets using boric acid as a binding agent. The concentration of thorium was determined by measuring the intensity of the characteristics first order Th L alpha line. The calibration was carried out with USGS rock standards AGV-1, GSP-1 and G-2. Seven granite rock samples from Granite Mountains of Wyoming, USA, supplied by Dr. Stuckless, were also analyzed. The results obtained were compared with values obtained in other laboratories using different

analytical methods. The analyses show that the thorium is concentrated in accessory minerals and presented a non-uniform distribution, making sampling an important factor in the analysis of thorium. A discussion of the precision and accuracy of the method is presented.

CC 07D Physical chemistry
08I Mining engineering
99A Analytical chemistry
48A Mineral industries

CT *Thorium; *Granites; X-ray fluorescence analysis; Chemical analysis; Calibration standards; Comparative evaluations; Sampling; Accuracy; Reliability; Quantitative chemical analysis; Experimental data
*Foreign technology

UT ENERGY CL 400103; NTISDEP

L58 ANSWER 39 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1981:609104 HCAPLUS
DN 95:209104
TI Analyzing anions and treating radioactive liquid waste utilizing the same
IN Horiuchi, Susumu; Hiraoka, Taiji; Saito, Toru
PA Hitachi, Ltd. , Japan
SO Eur. Pat. Appl., 42 pp.
CODEN: EPXXDW
DT Patent
LA English
IC G01N031-04; G01N027-06; G21F009-04
CC 60-2 (Sewage and Wastes)
Section cross-reference(s): 79

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 36303	A1	19810923	EP 1981-301047	19810312
	EP 36303	B1	19860205		
	R: AT, BE, CH, DE, FR, GB, IT, LU, NL, SE				
	JP 56128497	A2	19811007	JP 1980-32535	19800313
	JP 56135154	A2	19811022	JP 1980-39203	19800326
	US 4507390	A	19850326	US 1981-243620	19810313
PRAI	JP 1980-32535	19800313			
	JP 1980-39203	19800326			

AB Anions of low degree of dissocn. and low elec. cond. in aq. soln. are detd. by reacting them with a polyhydric alc. and then detg. the H+ formed from the reaction. Thus, an aq. **H3BO3** soln. contg. various anions and cations is charomatog. processed to give a cation-free **H3BO3** soln., the elec. cond. is detd., a sorbitol soln. is added to form the complex and free H+, the elec. cond. is detd. a 2nd time, and the borate ion **concn. detd.** a 2nd time, and the borate ion **concn. detd.** by the elec. cond. difference in the above 2 detns. This procedure is used to adjust the H3BO3 concn. in a NaOH-contg. PWR radioactive waste soln. to give a NaOH/H3BO3 wt. ratio of 0.28-0.4 so that the soln. can be changed into a powder in a centrifuged thin-film drier for pelletization.

ST boric acid radioactive waste processing; borate detn complexation chromatog; anion detn complexation chromatog; elec cond anion detn complexation

IT Electric conductivity and conduction
(of aq. soln. contg. boric acid-polyhydric alc. reaction product, in borate ion detn.)

IT Radioactive wastes
(liq., **boric acid concn. detn.** in, for powdering and pelletization)

IT **10043-35-3**, analysis 14100-65-3
RL: **ANT (Analyte)**; ANST (Analytical study)
(detn. of, in radioactive liq., elec. cond. and polyhydric alc. complexation in)

IT 50-70-4DP, borate complexes 69-65-8DP, borate complexes 7440-42-8DP,

complexes with mannitol and sorbitol
RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, in borate detn. in aq. soln.)
IT 50-70-4, occurrence 69-65-8
RL: OCCU (Occurrence)
(in complexation of borate ion in radioactive liq. waste, for elec. cond. detn.)

L58 ANSWER 40 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1981:487864 HCAPLUS
DN 95:87864
TI Effect of destabilizing factors on the **determination** of **boric acid concentration**
AU Bovin, V. P.; Gurkov, V. A.; Zasadych, Yu. B.; Nikolaenko, O. K.; Ponomarev, E. G.; Chistyakov, B. G.; Shagov, S. V.
CS USSR
SO Vopr. At. Nauki Tekh., [Ser.]: Radiats. Tekh. (1980), 19, 148-52
CODEN: VANTDI
DT Journal
LA Russian
CC 71-5 (Nuclear Technology)
Section cross-reference(s): 79
AB For timely control of the concn. of H3BO3 in a WWER-type reactor **coolant**, a continuous automatic detn. of the H3BO3 content in the **coolant** is required. The effect was studied of destabilizing factors: **coolant** temp. and temp. of the surrounding media, n background, .gamma.-ray dose rate, thickness of the pipelines, and **coolant** d. on the operation of the B concn. meter NAR-B at nuclear power plant conditions.
ST WWR boron concn meter **coolant**; reactor **coolant** boron concn detn
IT Nuclear reactors
(water-cooled, WWR, **coolants** and cooling systems, **boric acid concn. detn.** in, destabilizing factors effect on)
IT 7440-42-8, analysis **10043-35-3**, analysis
RL: **ANT (Analyte)**; ANST (Analytical study)
(detn. of, in WWR **coolant**, destabilizing factors effect on)

L58 ANSWER 41 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1981:487863 HCAPLUS
DN 95:87863
TI Boron concentration meter for monitoring water-moderated, water-cooled type nuclear power reactors
AU Bovin, V. P.; Gurkov, V. A.; Nikolaenko, O. K.; Chistyakov, B. G.; Shagov, S. V.; Ponomarev, E. G.; Polyakov, Yu. A.
CS USSR
SO Vopr. At. Nauki Tekh., [Ser.]: Radiats. Tekh. (1980), 19, 141-8
CODEN: VANTDI
DT Journal
LA Russian
CC 71-5 (Nuclear Technology)
Section cross-reference(s): 79
AB The development of nuclear power engineering based on WWER-type reactors, into the **coolant** of which is introduced **H3BO3** to compensate for excess reactivity, has required the development of methods for continuously **measuring** the B **concn**. The B concn. meter is based on the n-absorption method of anal. The assocd. app. is described. The NAR-B analyzer was able to detect a change in H3BO3 concn. from 7.56 g/kg to zero and from zero to 6 g/kg with an error of .ltoreq.4%.
ST boron concn meter monitoring reactor; WWR boric acid concn monitoring
IT Nuclear reactors
(water-cooled, WWR, **coolants** and cooling systems, boron

concn. monitoring meter for)
IT 7440-42-8, analysis **10043-35-3**, analysis
RL: **ANT (Analyte)**; ANST (Analytical study)
(detn. of, in WWR **coolant**, meter for)

L58 ANSWER 42 OF 57 COMPENDEX COPYRIGHT 2000 EI
AN 1981(2):5518 COMPENDEX DN 810216420
TI Instrument for **Measuring** the **Concentration** of **Boric Acid** in the Cooland of a Power Reactor.
MIERNIK STEZENIA KWASU BOROWEGO W CHLODZIWIE REAKTORA ENERGETYCZNEGO.
AU Lisieski, Waldeman
SO Przegl Elektrotech v 56 n 3 Mar 1980 p 129-132
CODEN: PZELAL ISSN: 0033-2097
PY 1980
LA Polish
AB The principles of operation of a meter designed for the continuous **measurement** of **boric acid** **concentration** in the boron recovery installations from reactor cooling water are described. The range of **measured** **concentrations** is 45 g **H3BO3**/kg in three sub-ranges. The principle of meter operation is based on the method of neutron absorption by boron. The main technical and operational parameters and the results of measurements on an experimental boron recovery installation are given. Research work is outlined for extending the application of the meter. 11 refs. In Polish.
CC 621 Nuclear Reactors; 804 Chemical Products
CT ***NUCLEAR REACTORS, WATER COOLED:Measurements**; **ACIDS:Measurements**
ST BORIC ACID
ET W; B*H*O; H3BO3/; H cp; cp; B cp; O cp

L58 ANSWER 43 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1979:600933 HCAPLUS
DN 91:200933
TI NAR-B neutron-absorption concentration meters
AU Antonenko, A. M.; Gorbenko, V. M.
CS Dnepropetr. Gos. Univ., Dnepropetrovsk, USSR
SO Zavod. Lab. (1979), 45(9), 848-9
CODEN: ZVDLAU; ISSN: 0044-1910
DT Journal
LA Russian
CC 71-9 (Nuclear Technology)
Section cross-reference(s): 79
AB The title device was developed for the continuous automatic detn. in soln. of the concn. of a single element having a large absorption cross-section for slow n. One of the principal uses of this app. is in **detg.** the **concn.** of **H3BO3** in the primary loop **coolant** of WWER-type reactor installations. The basis tech. characteristics of the analyzer are presented.
ST neutron absorption concn meter; reactor **coolant** boric acid detn
IT Nuclear reactors
(water-cooled, WWR, **coolants** and cooling systems, **boric acid detn.** in, neutron-absorption **concn.** meters in relation to)
IT **10043-35-3**, analysis
RL: **ANT (Analyte)**; ANST (Analytical study)
(detn. of, in nuclear reactor primary loop **coolant**, app. for)

L58 ANSWER 44 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1978:182040 HCAPLUS
DN 88:182040
TI **Determination** of an isotopic **concentration** of boron in **boric acid** and boron oxide
IN Kucheryaev, A. G.; Lebedev, V. A.

PA USSR
SO U.S.S.R.
From: Otkrytiya, Izobret., Prom. Obraztsy, Tovarnye Znaki 1978, 55(5), 147.
CODEN: URXXAF
DT Patent
LA Russian
IC G01N027-28
CC 79-6 (Inorganic Analytical Chemistry)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI SU 591755	T	19780205	SU 1976-2397504	19760824

AB The B isotopic concn.in boric acid and B oxide was detd. by measuring the amplitudes of the multiplet lines owing to heteronuclear spin-spin coupling in F-19 NMR. The anal. time was decreased and its cost was reduced by dissolving boric acid or boron oxide in HF and recording the F-10B-decoupled NMR spectra of BF4-. The isotopic concn. of 10B was detd. from the ratio of the singlet amplitude owing to the bond between 19F and 10B to the sum of the amplitudes of the singlet and quartet owing to the heteronuclear spin-spin coupling of 19F with 11B. Boric acid and boron oxide were dissolved in HF so that the F/B ratio was 3.5-4 and the concn. was 2M B.
ST boron isotope detn fluorine NMR; boric acid analysis boron isotope; oxide boron analysis boron isotope; hydrofluoric acid boron isotope detn
IT 1303-86-2, analysis 11113-50-1
RL: ANST (Analytical study)
(boron isotope detn. in, by F-19 NMR spectrometry)
IT 7440-42-8D, isotopes, analysis
RL: **ANT (Analyte)**; ANST (Analytical study)
(detn. of, in **boric acid** and boron acid by fluorine-19 NMR)
IT 14798-12-0, analysis
RL: **ANT (Analyte)**; ANST (Analytical study)
(detn. of, in **boric acid** and boron oxide, hydrofluoric acid in F-19 NMR spectrometric)
IT 7664-39-3, uses and miscellaneous
RL: USES (Uses)
(in detn. of boron isotopes by F-19 NMR spectrometry)

L58 ANSWER 45 OF 57 WPIDS COPYRIGHT 2000 DERWENT INFORMATION LTD
AN 1977-31260Y [18] WPIDS
TI Automatic **measurement** of boron **concentration** - in **boric acid** - contg. water used in primary **coolant** of pressure water reactor by conductivity determination.
DC E36 K05 S03
PA (NIKK-N) NIKKISO CO LTD
CYC 4
PI DE 2645846 A 19770428 (197718)*
CH 609778 A 19790315 (197916)
GB 1556063 A 19791121 (197947)
JP 52049092 A 19770419 (199129)
PRAI JP 1975-124529 19751016
IC G01N001-28; G01N027-06; G21C017-02
AB DE 2645846 A UPAB: 19930901
The appts. is provided with a temp. sensitive element for the determn. of the changes in temperature of the continuously flowing mixt.
The temperature-sensitive element, which pref. has a positive temp. coefft. of resistance and may be a Cu, Pt, or Ni wire, is incorporated in a measuring circuit for measurements by changes in the temperature of the continuously flowing water sample.
Method provides automatic correction for temp. changes during the measurement of boron concn.
FS CPI EPI

FA AB
MC CPI: E31-Q; K05-B03; K05-B05; K05-B06

L58 ANSWER 46 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1977:589547 HCAPLUS
DN 87:189547
TI Analysis of alcohol solutions of boric acid
AU Morachevskaya, M. D.; Danevich, V. I.; Shigina, L. I.
CS Leningr. Khim.-Farm. Inst., Leningrad, USSR
SO Farmatsiya (Moscow) (1977), 26(5), 83-4
CODEN: FRMTAL
DT Journal
LA Russian
CC 64-4 (Pharmaceutical Analysis)
AB Optical d. factor anal. was shown to be an accurate method for **detg.** the **concn.** of **H3BO3** in solns. contg. **H3BO3**, EtOH, and water. The precision of this method was .+-.0.02% when the concn. of EtOH-water was 60-80%.
ST boric acid detn alc soln
IT **10043-35-3**, analysis
RL: **ANT (Analyte)**; ANST (Analytical study)
(detn. of, in alc. solns., by optical d. factor anal.)

L58 ANSWER 47 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1977:164809 HCAPLUS
DN 86:164809
TI Method and a device for **determining** the **boric acid concentration** in the **coolant** of light-water nuclear power reactors
AU Trifonov, A.; Stefanov, G.; Mikhailov, M.; Khristov, V.; Guteva, E.
CS Inst. Yad. Issled. Yad. Energ., Sofia, Bulg.
SO Yad. Energ. (1976), 3, 42-8
CODEN: YAENDM
DT Journal
LA Bulgarian
CC 79-6 (Inorganic Analytical Chemistry)
Section cross-reference(s): 71
AB A device for detg. B concn. in H2O by neutron absorption consisted of a Pu-Be neutron source (5 .times. 106 neutrons/s) and the SNM-17 counter immersed in the H2O; the counting rate under const. geometry conditions decreased from 50,000 to 13,000 cps when the B concn. was increased from 0 to 20 g/L. The errors in the detn. of 2-10 and 10-20 g H3BO3/dm3 in the primary circuit **coolant** of a nuclear power reactor were .ltoreq.1.5 and 4%, resp.
ST boron detn water **coolant**; boric acid detn water **coolant** ; water **coolant** analysis boron; nuclear reactor **coolant** analysis boron; neutron absorption boron detn water
IT Nuclear reactors
(**coolants**, boron detn. in water, by neutron absorption)
IT 7732-18-5, analysis
RL: AMX (Analytical matrix); ANST (Analytical study)
(boron detn. in, in **coolant** circuit of nuclear power reactor, by neutron absorption)
IT **10043-35-3**, analysis
RL: **ANT (Analyte)**; ANST (Analytical study)
(detn. of, in water **coolant** of nuclear power reactor, by absorption)
IT 7440-42-8, analysis
RL: ANT (Analyte); ANST (Analytical study)
(detn. of, in water **coolant** of nuclear powere reactor, by absorption)

L58 ANSWER 48 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1977:574475 HCAPLUS

DN 87:174475
TI Equipment for continuous **measurement** of **boric acid concentration** of a pressurized water reactor
AU Csom, G.; Desi, S.; Elo, S.; Szepessy, B.; Szucs, I.; Spitko, E.
CS Tech. Univ. Budapest, Budapest, Hung.
SO Int. Fachmesse Kerntech. Ind. (1976), Meeting Date 1975, Issue Kolloq. C1, Paper C1/6, 10 pp. Publisher: Swiss Ind. Fair, Basel, Switz.
CODEN: 36RLAX
DT Conference
LA German
CC 71-5 (Nuclear Technology)
Section cross-reference(s): 79
AB A method and app. are described for measuring the B concn. of water in a PWR by using n absorption. The tests were conducted with a BF3 counting tube and a Pu-Be n source. Many geometrical variants were tested to establish the optimal measuring arrangement, but they can all be classified further as 1 of 2 types: transmission or reflection. The construction of the optimal app. is described in detail.
ST boric acid pressurized water reactor; detn boron reactor neutron
IT Nuclear reactors
(water-cooled, PWR, **boric acid concn.** continuous **measurement** in, app. for)
IT 7440-42-8, analysis **10043-35-3**, analysis
RL: **ANT (Analyte)**; ANST (Analytical study)
(detn. of, in water of pressurized-water nuclear reactors, by neutron absorption)
IT 12586-31-1, chemical and physical effects
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(in **boric acid concn.** continuous **measurement** in water of pressurized-water reactor)

L58 ANSWER 49 OF 57 COMPENDEX COPYRIGHT 2000 EI
AN 1976(4):632 COMPENDEX DN 760425657
TI NEUTRON-ABSORPTION ANALYZER OF BORON IN THE **COOLANT** OF THE PRIMARY CIRCUIT OF WATER-COOLED WATER-MODERATED POWER REACTORS.
AU Bovin, V.P.; Chulkin, V.L.; Shagov, S.V.
SO Sov At Energy v 38 n 5 May 1975 p 363-366
CODEN: SATEAZ
PY 1975
LA English
AB A neutron-absorption analyzer designed for **measuring boric acid concentrations** in the **coolant** of the primary circuit of water-cooled water moderated power reactors up to 50 g/kg in three ranges 0-10, 0-20 and 0-50 g/kg is described. The results are applied to a potentiometer recorder and to a control and computing circuit. The accuracy is better than 4% of full range for time interval meter time constanttau=50 sec. The results of analyzer calibration are presented. 6 refs.
CC 621 Nuclear Reactors; 932 High Energy, Nuclear & Plasma Physics
CT *NEUTRONS:Absorption; NUCLEAR REACTORS:Cooling

L58 ANSWER 50 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1976:11760 HCAPLUS
DN 84:11760
TI Apparatus for **measuring boric acid concentration**
AU Bovin, V. P.; Ivanov, O. V.; Komissarov, V. A.; Shagov, S. V.
CS USSR
SO [Tr.], VNII Radiats. Tekhn. (1975), (11), 263-8
From: Ref. Zh., Khim. 1975, Abstr. No. 13D5
DT Journal
LA Russian
CC 79-2 (Inorganic Analytical Chemistry)
AB Title only translated.

nuclear reactor moderator analysis borate; borate detn nuclear reactor moderator
IT Acids, analysis
Bases, analysis
RL: ANST (Analytical study)
(detn. of weak, in liqs. at boiling point, app. for, conductometric)
IT Electric conductivity and conduction
(detn. of, app. for, for detn. of weak acids and bases in liqs. at boiling point)
IT Nuclear reactors
(moderators, boric acid detn. in)
IT 7732-18-5, analysis
RL: ANST (Analytical study)
(buffer capacity detn. in boiling, in power plant steam generators, app. for conductometric)
IT **10043-35-3**, analysis
RL: **ANT (Analyte)**; ANST (Analytical study)
(detn. of, in moderators for nuclear reactors, app. for conductometric)

L58 ANSWER 53 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1975:144740 HCAPLUS
DN 82:144740
TI **Determination** of the **boric acid concentration** in the primary **coolant** of pressurized water reactors
AU Panovsky, W.; Felsberg, H.; Oertel, K.
CS Inst. Energet., Leipzig, E. Ger.
SO Acta Hydrochim. Hydrobiol. (1974), 2(1), 83-8
CODEN: AHCBAU
DT Journal
LA German
CC 61-2 (Water)
Section cross-reference(s): 79
AB The method is based on the detn. of complexes of free H3BO3 with 1,2- or cis 1,3-diols by using cond. measurements or potentiometric titrn. The instruments used are described and results were compared to the usual anal. titrimetric method. Satisfactory accuracy was obtained in the range 50 mg-6 g H3BO3/l.
ST boric acid detn water; diol boric acid detn water
IT 7732-18-5, analysis
RL: ANST (Analytical study)
(boric acid detn. in)
IT **10043-35-3**, analysis
RL: **ANT (Analyte)**; ANST (Analytical study)
(detn. of, in water)

L58 ANSWER 54 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1975:421837 HCAPLUS
DN 83:21837
TI **Measurement** of **boric acid concentration** in electrolyte solutions for molding aluminum foils by indirect parameters
AU Frolov, V. N.; Klimentov, N. I.
CS USSR
SO Sb. tr. Voronezh. politekhn. in-ta (1973), (Vyp. 4), 243-6
From: Ref. Zh., Khim. 1974, Abstr. No. 13L311
DT Journal
LA Russian
CC 79-6 (Inorganic Analytical Chemistry)
AB Title only translated.
ST boric acid detn electrolyte; electrolyte analysis boric acid
IT **10043-35-3**, analysis
RL: **ANT (Analyte)**; ANST (Analytical study)
(detn. of, in electrolyte solns. for molding aluminum foils)

IT 7429-90-5, uses and miscellaneous
RL: USES (Uses)
(molding foils of, boric acid detn. in electrolyte solns. for)

L58 ANSWER 55 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1970:461796 HCAPLUS
DN 73:61796
TI Automatic boron concentration monitoring in pressurized water reactors
AU Steger, H.
CS Ger.
SO Kerntechnik (1970), 12(4), 155-8
CODEN: KERTAA
DT Journal
LA German/English
CC 76 (Nuclear Technology)
AB In pressurized water reactors, the admixt. of boric acid to the **coolant** presents appreciable advantages as compared with the power output control by means of control rods only. By varying the boric acid concn. in the primary circuit diurnal power variations can be achieved; in addn. n flux changes owing to increasing burnup or reloading can be compensated. This requires a continuous **measurement** of the **boric acid concn.** with high precision, long term reproducibility, and over a wide concn. range. To achieve this goal, an automatic titrator is proposed which solves the main problem of accurate and reproducible metering of small vols. of liq. by using a so-called minus-delta-p-pump. The detn. of the boric acid itself is performed by potentiometric titrn. with NaOH in the presence of mannite. The titration of 6 primary water samples/hr ensures a sufficiently accurate monitoring of the B concn.
ST boron monitoring reactors controls; monitoring boron reactors controls; reactors controls boron monitoring; controls reactors boron monitoring
IT Titrators
(automatic, for monitoring boron concns. in nuclear reactor **coolants**)
IT Nuclear reactors
(**coolants**, boron concn. monitoring in pressurized-water)
IT **10043-35-3**, analysis
RL: **ANT (Analyte)**; ANST (Analytical study)
(detn. of, in nuclear reactor pressurized-water **coolants**)
IT 7440-42-8, uses and miscellaneous
RL: USES (Uses)
(nuclear reactor **coolants** contg. poison of, monitoring of concn. in)

L58 ANSWER 56 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1969:46576 HCAPLUS
DN 70:46576
TI Temperature-jump study of the rate and mechanism of the boric acid-tartaric acid complexation
AU Kustin, Kenneth; Pizer, Richard
CS Brandeis Univ., Waltham, Mass., USA
SO J. Amer. Chem. Soc. (1969), 91(2), 317-22
CODEN: JACSAT
DT Journal
LA English
CC 22 (Physical Organic Chemistry)
AB Temp.-jump studies of the reactions of tartaric acid and bitartrate and tartrate anions with **boric acid** at 3 different H+ **concns.** allowed the **detn.** of the rate consts. for the reactions of tartaric acid and tartrate anion. The complexation rate const. for tartaric acid is 475 M-1 sec-1, which is considerably larger than the rate const. for tartrate anion (215 M-1 sec-1). Only a composite rate const. could be detd. for the ambident bitartrate anion (430 M-1 sec-1), which cannot be exptl. sepd. into rate consts. for the individual

reactions. No catalytic effect of acid on the rates of the individual reactions was noted within the limits of the expts. A concerted mechanism is proposed for the complex formation. The sequence includes attack of a nucleophilic alcoholic O on the electron-deficient B with concurrent release of water (in the tartaric acid reaction) or hydroxyl (in the bitartrate reaction). The leaving of water is assisted in the former case by the acidic **carboxyl** proton.

ST temp jump borate tartrate; borate tartrate temp jump; tartrate borate temp jump; complexation borate tartrate

IT Kinetics, reaction
(of boric acid with tartaric acid)

IT 526-83-0, reactions
RL: RCT (Reactant)
(with boric acid, kinetics of)

IT 10043-35-3, reactions
RL: RCT (Reactant)
(with tartaric acid, kinetics of)

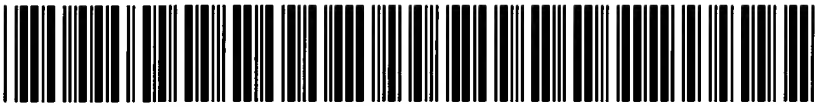
L58 ANSWER 57 OF 57 HCAPLUS COPYRIGHT 2000 ACS
AN 1968:83431 HCAPLUS
DN 68:83431
TI Measuring device for the control of boric acid concentration in reactor facilities
AU Faehrmann, Karl; Jaepel, F.
CS Zentralinst. Kernforsch., Rossendorf-Dresden, Ger.
SO Kernenergie (1967), 10(11), 337-40
CODEN: KERNAQ
DT Journal
LA German
CC 76 (Nuclear Technology)
AB The device for which the mech. structure, electronic detection app., and method of operation are described can be used to **det.** **H3BO3 concns.** from 0 to 10 g. B./l. with an accuracy of .ltoreq.5% at .ltoreq.120.degree., pressures .ltoreq.120 atm., and .gamma.-background .ltoreq.120 r./hr.

ST DETECTION B REACTORS; REACTORS BORIC ACID CONTROL; CONTROL BORIC ACID REACTORS; BORON DETECTION REACTORS; BORIC ACID CONTROL REACTORS

IT Nuclear reactors
(boric acid detn. and control in, app. for)

IT **10043-35-3**, analysis
RL: **ANT (Analyte)**; ANST (Analytical study)
(detn. of, in nuclear reactor, app. for)

US 0923879007P1



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